

show every feature of the claimed invention as described in the specification. New drawing Figs. 1-3 correspond to the originally submitted drawings Figs. 1-3. Additionally, the applicant has added Fig. 4 to clarify the subject matter of the invention. Specifically, Fig. 4 is a back perspective view of the assembly shown in Fig. 1 and does not include any new features or add any subject matter to the present invention. Therefore, the applicant hereby requests entry of new drawing Figs. 1-4 into the present application.

In the Office Action, the Examiner objected to the length of the Abstract of the Disclosure as filed. By the present amendment, the Abstract has been amended such that it is now of acceptable length.

In the Office Action, claims 1-2 were rejected under 35 USC §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Additionally, claims 1 and 2 were rejected under 35 USC § 102(b) as being anticipated by the Colwell U.S. Patent No. 5,375,651.

By the present amendment, claims 1 and 2 have been cancelled and new claims 3-12 added to the application. New claims 3-12 generally correspond to the subject matter included in original claims 1-2, but have been written to address the §112 problem raised by the Examiner.

In rejecting original claims 1 and 2, the Examiner stated that the '651 patent disclosed essentially the same invention as originally claimed in the present application.

By the present amendment, new claims 3-12 have been written to more accurately define the present invention and overcome the subject matter of the '651 reference. Specifically, independent claim 3 defines a method of cooling a furnace blower assembly that includes a motor housing and an impeller housing. The method requires the step of forming a vent aperture in the motor housing such that cooling air can enter the motor chamber through the vent aperture. The motor chamber is in fluid communication with the impeller chamber such that cooling air can pass from the motor chamber to the impeller chamber. Further, claim 3 requires rotating a single impeller to both draw in cooling air and draw in exhaust gases such that both the

cooling air and exhaust gases can be expelled from the impeller housing. The single impeller eliminates the need for a cooling fan to draw cooling air over the motor.

In the Colwell '651 reference, the draft inducer includes both an impeller and a separate fan blade. As illustrated in the '651 reference, the fan blade is located on the exterior of the impeller housing and draws air through an enclosure including the motor while the separate impeller is used to expel exhaust gases from the furnace.

As described in the present invention, the elimination of the fan blade reduces the load on the motor and reduces the overall height of the blower assembly. However, since the fan blade has been eliminated, an opening must be provided between the motor housing and the impeller housing such that the impeller can draw cooling air through the motor housing. Further, the impeller must be modified to include openings to allow the cooling air to pass through the back plate of the impeller such that the cooling air can be expelled through the outlet of the impeller housing. These features are all required by independent claim 3 and are not shown or described, nor rendered obvious, by the Colwell '651 reference.

Newly added independent claim 7 is directed to a furnace blower assembly that includes a motor housing having a vent aperture to allow cooling air to enter into the motor chamber defined by the motor housing. Further, an inlet port is formed between the impeller housing and the motor housing such that the cooling air can pass into the impeller chamber. As discussed above, the rotation of the single impeller causes the impeller to draw the cooling air through the motor housing and into the impeller housing while at the same time drawing the exhaust gases into the impeller housing. Thus, the impeller performs the function of both expelling exhaust gases and providing a flow of cooling air over the motor. Again, the Colwell '651 reference does not teach or suggest such a configuration. Instead, the Colwell '651 reference teaches the use of an external fan blade and an impeller contained within the enclosed impeller housing. For this reason, the Colwell '651 reference does not teach or suggest, nor render obvious, the subject matter of independent claim 7.

By the present amendment, the applicant's attorney has made every effort to place the application into consideration for allowance with claims 3-12.

Therefore, the applicant requests withdrawal of the rejection and passage of the application to allowance.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "Marked-Up Version".

The Examiner is invited to contact applicant's undersigned attorney with any questions or comments, or to otherwise facilitate prosecution of the present application.

Respectfully submitted,

ANDRUS, SCEALES, STARKE & SAWALL, LLP

By 
Joseph D. Kuborn - Reg. No. 40,689

Andrus, Sceales, Starke & Sawall, LLP
100 East Wisconsin Avenue, Suite 1100
Milwaukee, WI 53202
(414) 271-7590
Attorney Docket No.: 99917 (4497-4)



MARKED-UP VERSION

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IN THE SPECIFICATION

On page 6, lines 1 through 18, please amend the paragraphs as follows:

FIG. 3 is a perspective view of a motor housing 10 and impeller housing as shown in FIG. 1.

FIG. 4 is a perspective view of the impeller housing and impeller as shown in FIG. 1.

Detailed Description of the Invention

Referring to FIGS. ~~1-3~~1-4, a method for cooling a motor in a blower housing assembly for furnaces according to one embodiment of the invention is shown. A motor cover or housing 10 is configured to encompass a motor 12 which comprises a shaft 14, rotor 16 and stator 18. Motor cover 10 has portions that define a shaft bushing 20 and mechanical fastener bores 22 for securing motor 12 to motor cover 10. Motor cover 10 has flanges 24 each of which has portions defining a fastener bore 26 for securing motor cover 10 to ~~aan~~ impeller housing 28 which is configured to encompass an impeller 30 which is attached to shaft 14. Impeller 30 is situated in impeller housing 28 such that impeller 30 can freely rotate within said impeller housing 28.

On page 6, line 27 through page 7, line 18, please amend the paragraphs as follows:

Impeller 30 has a plurality of fins 34 which provide surfaces for directing incoming air from motor chamber 38 or exhaust gases from an attached furnace. The incoming air from the motor 12 flows through an inlet port 41 between the motor housing 10 and the impeller housing 28. The air then flows through at least one any size hole or aperture 36 located on the back plate 42 of the impeller ~~30housing 28~~ from the motor case 10 by rotation of the impeller 30.

The method of venting the air in furnaces according to the foregoing description results in a blower design that eliminates the need for an auxiliary fan (not shown) attached to shaft 14. In this method there is at least one hole or aperture 32 situated anywhere in a motor case or housing 10 that allows for air to enter the housing 10 to cool the bearings (not shown) of the motor 12 and the motor 12 itself in

the motor case 10. The warm air flows across and around the motor 2 in the direction of the impeller housing 28 and through an inlet port 41 in the impeller housing 28. The air then flows through at least one any size hole or aperture 36 located on the back plate 42 of the impeller 30~~an impeller housing 28~~ from the motor case 10 by rotation of the impeller 30. The exhaust air from the impeller 30 is directed out of the outlet 43 of the impeller housing 28.~~An outlet or exhaust pipe 38~~

On page 8, lines 1-13, please amend the paragraph as follows:

It is further possible to eliminate much of the heat t hat is generated in the vestibule of a furnace. Temperatures which typically reach 150°F an be reduced to 90°F by using the novel venting method. The blower can be sealed off to the furnace for fresh air intake. Optionally, the blower can be sealed off to the furnace door to allow for the total sealing of the inducer compartment to maximize blower efficiency. Such a configuration maximizes the drawing of motor heat into the impeller chamber and out ~~the outlet 43~~~~an outlet pipe 38~~ which is in fluid communication with the impeller housing 28. Also maximized is the elimination of the heat source near the furnace electronics which are at least partially contained in the furnace vestibule.

IN THE ABSTRACT:

Please amend the abstract as follows:

A method of cooling the bearings of a motor in a motor housing for a furnace assembly is disclosed comprising an aperture in the motor housing whereby air is brought into the motor housing and drawn around the motor via an impeller into the impeller housing thereby eliminating the need of a separately attached fan to cool the motor or motor bearings. The impeller pulls the air from the motor housing ~~ease~~ into the impeller housing or blower via an inlet port in the impeller housing and apertures in the back plate of the impeller ~~housing~~ and out an exhaust port situated in the impeller ~~blower~~ housing.

~~The venting method provides a means of eliminating auxiliary motor fans used to cool the motor which results in the reduction of noise levels produced by~~

~~the blower, a shortened blower housing height as well as a means of eliminating heat sources near the electronics in a vestibule portion of a furnace to which the blower is attached.~~

~~The combination of the vent slots and impeller back plate apertures allow for external air to be drawn into the blower over the motor, into the impeller portion of the blower housing and out an exhaust port situated in the blower housing.~~